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(56) Documents Cited

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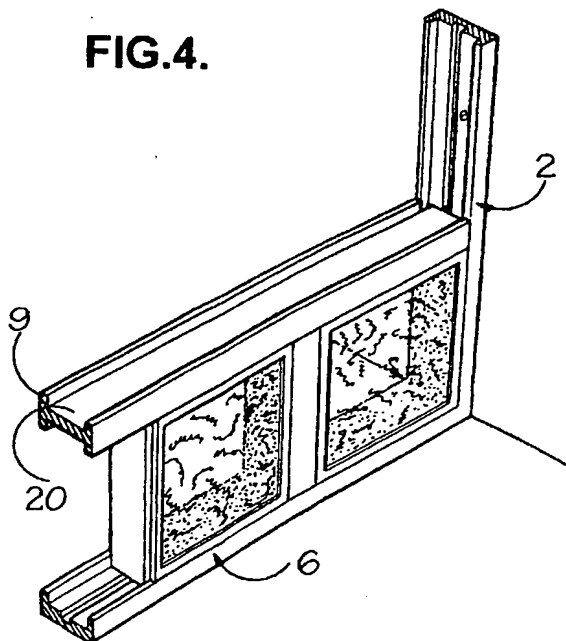
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(54) Abstract Title

Framework for glass block wall

(57) A walling apparatus, for use in constructing a glass block wall, comprises elongate members 2, 6, 20 fixed to one another in a framework to retain glass blocks in a wall. A groove may be formed in a major face of an elongate member 2 for use as an upright, the groove receiving a slotted clip which engages with a pin mounted in the end of another elongate member 20 serving as a horizontal rail. The pin and clip engage to fix the upright and rail together.

FIG.4.



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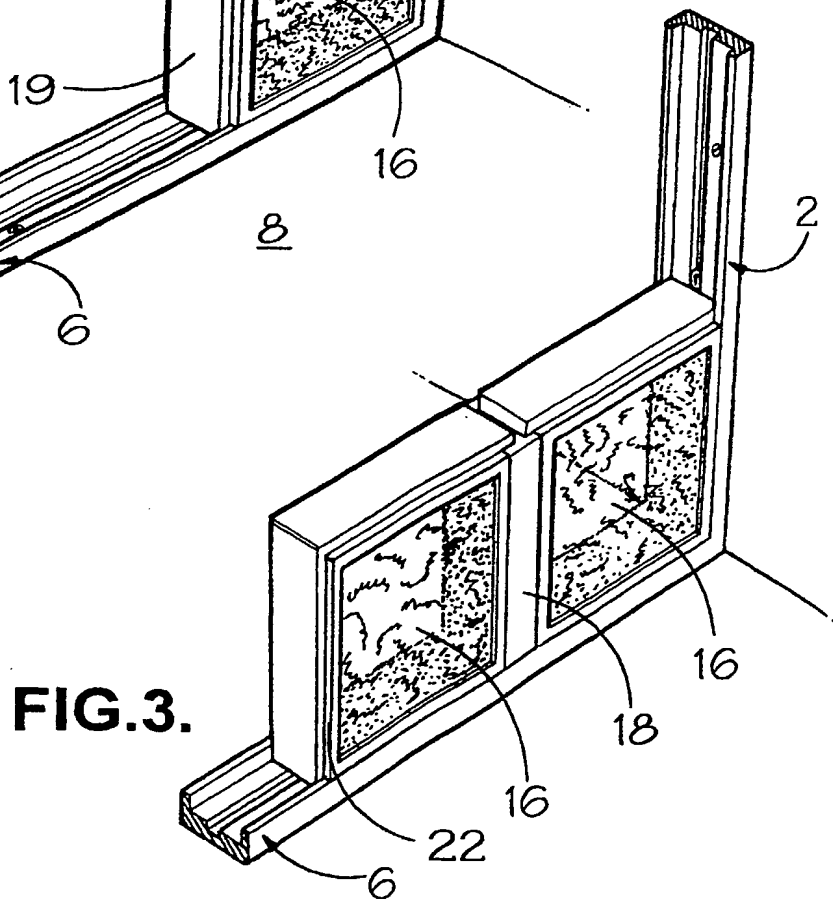
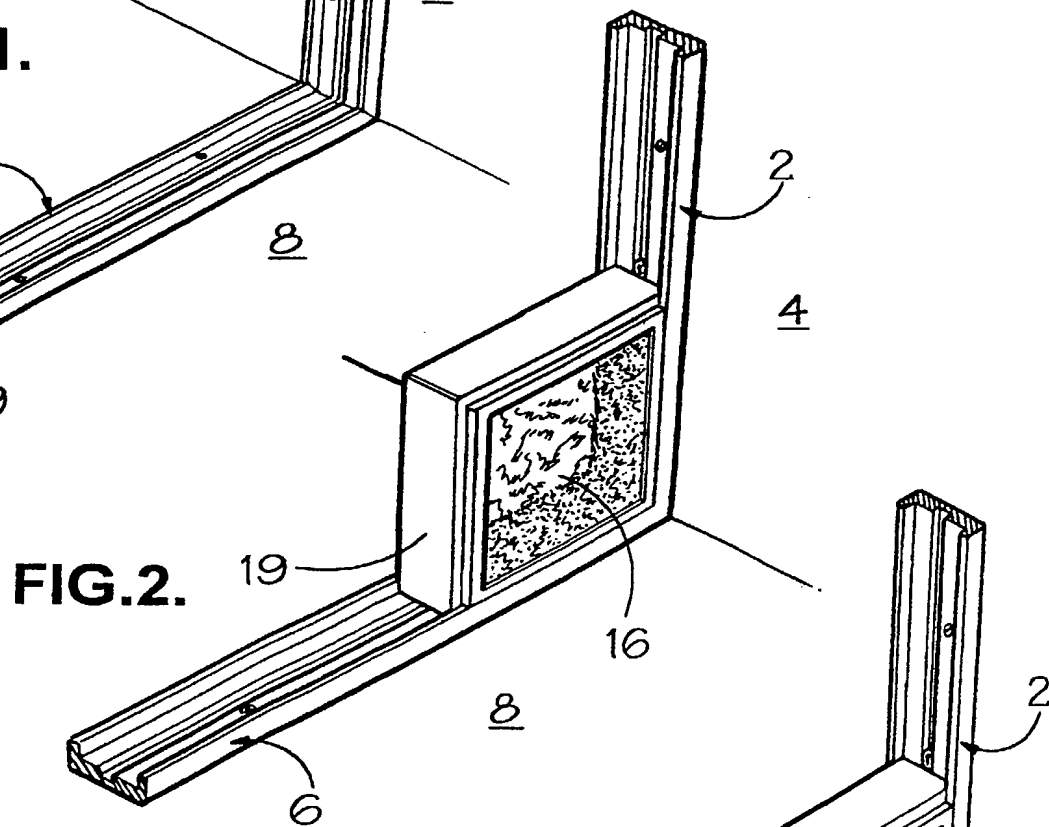
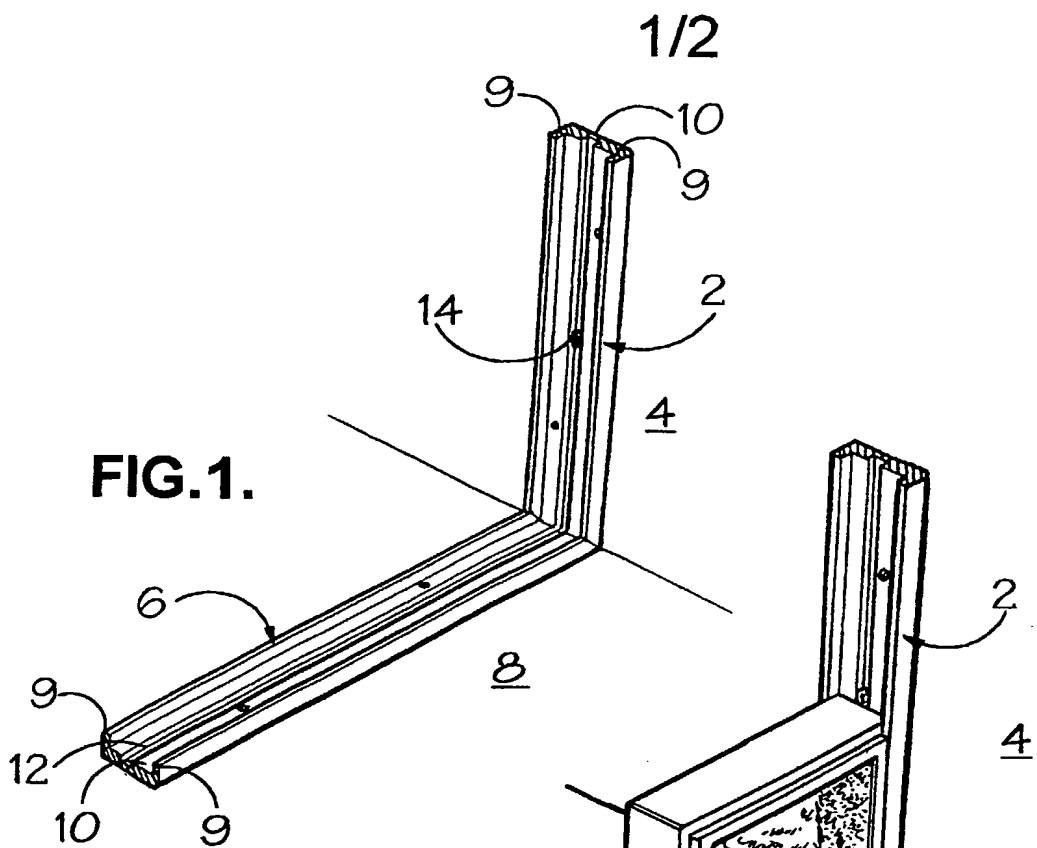


FIG.4.

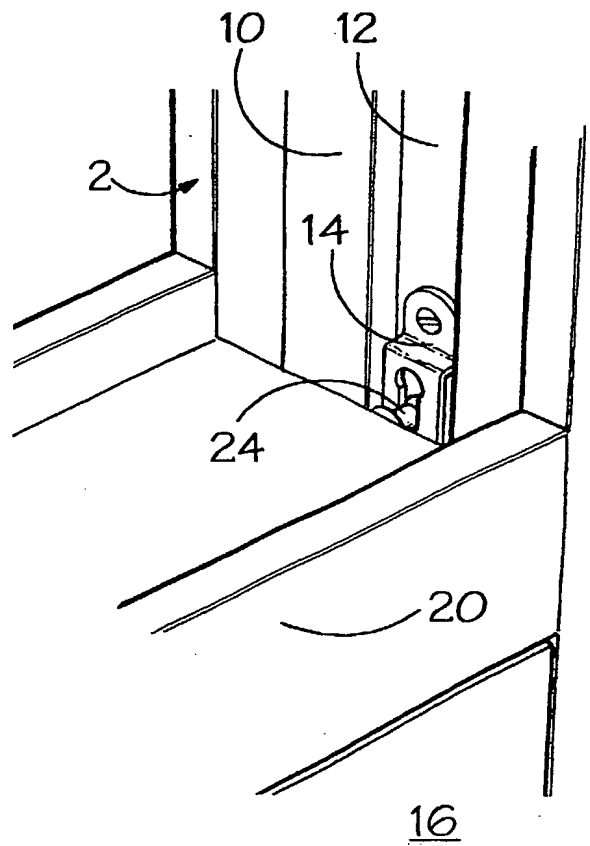
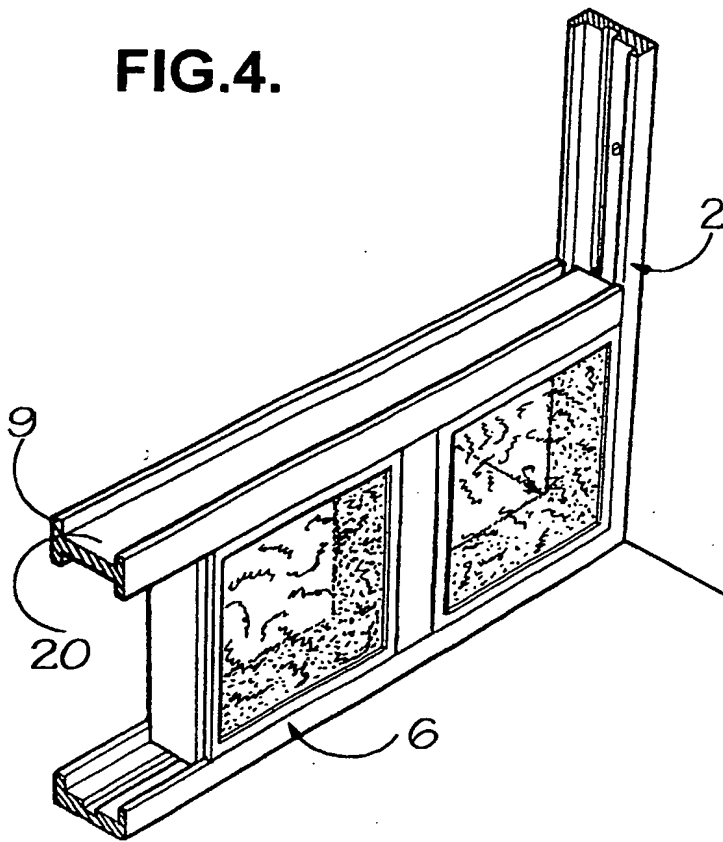


FIG.5.

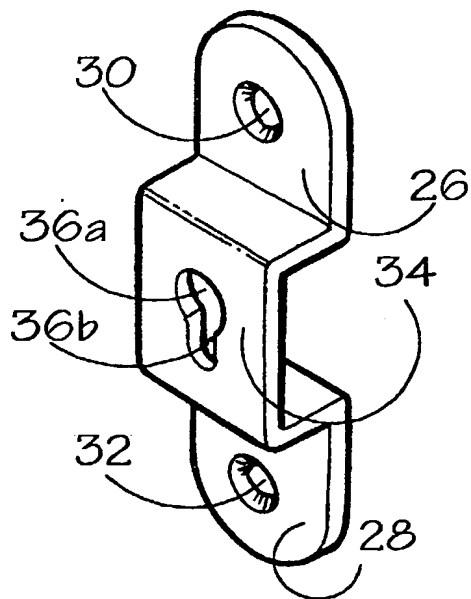


FIG.6.

DESCRIPTIONWALLING APPARATUS AND METHOD

The present invention relates to a walling apparatus and a method of building a wall. In particular, the invention relates to a walling apparatus for and a method of building glass walls.

It is known to build walls from glass blocks and mortar. This has the disadvantage that, since glass blocks are not absorbent, special mortars, which require curing, must be used and skill is required to ensure that the correct amount of mortar is applied in the correct place. Often, even when such a wall is built by one suitably skilled, excess mortar must be removed from the finished wall.

Walls built according to known methods also have the disadvantage that they may not be easily disassembled and reassembled.

It is an aim of the present invention to provide an apparatus and method for building glass block walls which alleviates some of the problems associated with known apparatus and methods.

In accordance with a first aspect of the present invention there is provided a walling apparatus comprising a plurality of elongate members adapted to be fixed to one another in a framework and adapted to retain glass blocks in a wall.

This confers the advantage that the wall is dry; no mortars or adhesives are necessary.

Preferably at least one of the elongate members is a cill which is adapted to be fixed to the floor and to support glass blocks from which a wall is to be built.

Preferably at least one of the elongate members is an upright adapted to be fixed

substantially vertically at an end of a wall to be built.

The at least one upright may advantageously be fixed adjacent an existing wall.

More preferably, at least two of the elongate members are uprights adapted to be fixed vertically at respective ends of a wall to be built.

In one embodiment, at least one of the elongate members is a rail adapted to be fixed substantially horizontally within a wall between layers of blocks.

Preferably a plurality of the elongate members are mullions adapted to be placed vertically between adjacent glass blocks.

Advantageously, the apparatus may further comprise pins mounted or mountable in ends of the rails and adapted to engage with slotted clips mounted or mountable in at least one groove in at least one upright such that the rails are fixed and retained substantially perpendicularly to the at least one upright.

In an alternative embodiment, the rails are adapted to be fixed substantially vertically within a wall between stacks of blocks.

Preferably, the mullions may be adapted to be placed horizontally between adjacent glass blocks.

Advantageously, the apparatus may further comprise pins mounted or mountable in ends of the rails and adapted to engage with slotted clips mounted or mountable in at least one groove in the cill and/or the top piece such that the rails are fixed and retained substantially perpendicularly to the cill and/or the top piece.

Preferably, in all embodiments, at least one of the elongate members is a top piece adapted to be fixed on top of the wall.

Advantageously, some or all of the uprights and/or the cill and/or the mullions and/or

the rails and/or the top piece may comprise lips on at least one major surface which engage with the glass blocks.

Advantageously, some or all of the uprights and/or the cill and/or the mullions and/or the rails and/or the top piece may be formed of timber. Other materials, for example PVC or MDF (medium density fibreboard), may also be advantageous.

Preferably the apparatus may further comprise a plurality of glass blocks which may advantageously comprise shoulders, preferably along edges of the glass blocks.

In accordance with a second aspect of the present invention there is provided a method of building a glass block wall comprising the steps of:

fixing an upright in a generally vertical position to form an end of the wall;

fixing a cill in a generally horizontal position such that an end of the cill is adjacent an end of the upright;

placing a glass block, having a front face, a rear face, a top face, a bottom face and two side faces, on the cill such that a side face of the block contacts the upright and a bottom face of the glass block contacts the cill;

placing a mullion, having end faces, edges and two faces, substantially vertically on the cill with a face of the mullion in contact with a side face of the glass block;

placing further glass blocks and mullions on the cill until a required width of wall is achieved; and

placing a rail, having ends, edges and two faces, on top of the glass blocks and mullions with an end of the rail in contact with the upright, a face of the rail being in contact with the glass blocks and the mullions.

Advantageously, the method may further comprise the steps of:

inserting at least one pin into an end of at least one rail;

fixing at least one slotted clip to at least one upright; and

slotting a head of the at least one pin into a slot in the at least one clip.

Preferably the method further comprises building at least one further layer of blocks and mullions in a like manner onto the at least one rail.

Advantageously, the method further comprises fixing a second upright in a substantially vertical position to form a second end of the wall.

Also advantageously, the method may comprise fixing a top piece above the uppermost layer of blocks and mullions.

In accordance with a third aspect of the present invention there is provided a method of building a glass block wall comprising the steps of:

fixing an upright in a generally vertical position to form an end of the wall;

fixing a cill in a generally horizontal position such that an end of the cill is adjacent an end of the upright;

placing a glass block, having a front face, a rear face, a top face, a bottom face and two side faces, on the cill such that a side face of the block contacts the upright and a bottom face of the block contacts the cill;

placing a mullion, having ends, edges and two faces, substantially horizontally on the block with a face in contact with a top face of the glass block;

placing further glass blocks and mullions on the first glass block and mullion until a required height of wall is achieved; and

placing a rail, having ends, edges and two faces, adjacent the glass blocks and mullions with an end of the rail in contact with the cill, and a face of the rail being in contact with the

glass blocks and the mullions.

Advantageously, the method may comprise fixing a top piece to the upright substantially parallel to the cill.

Advantageously, the method may further comprise the steps of:

inserting at least one pin into the end of at least one rail;

fixing at least one slotted clip to at the cill and/or the top piece; and

slotting the head of the at least one pin into a slot in the at least one clip.

Preferably the method further comprises building at least one further stack of blocks and mullions in a like manner.

Advantageously, the method further comprises fixing a second upright in a substantially vertical position to form a second end of the wall.

In accordance with a fourth aspect of the present invention there is provided wall comprising at least one upright, at least one cill, a plurality of mullions, at least one rail and at least one top piece.

Preferably the wall may further comprise a plurality of pins and slotted clips fixed to the at least one rail and the at least one upright respectively, and adapted to engage with one another.

Alternatively, the wall may further comprise a plurality of pins fixed to the at least one rail and a plurality of slotted clips fixed to the cill and/or the top piece, the pins and the clips being adapted to engage with one another.

A specific embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of an upright and a cill positioned according to the

invention;

Fig. 2 is as Fig. 1, with a first glass block fitted;

Fig. 3 is as Fig. 2, with a first mullion and a second glass block fitted;

Fig. 4 is as Fig. 3, but additionally showing a first rail in position;

Fig. 5 is a detail of a pin in the end of a rail engaging with a slotted clip fixed to an upright; and

Fig. 6 is a slotted clip for use in the present invention.

A glass block wall of the present invention may be begun by fixing vertically an elongate upright 2 (in figure 1) to a wall 4 perpendicular to which the glass block wall is to be built. An elongate cill 6 is then fixed to the floor 8 adjacent and normal to the wall 4. A second upright (not shown) is then fixed substantially vertically to the free end of the cill 6. The second upright may be fixed to another wall or it may be freestanding, in which case it may be supported in a known manner.

The uprights 2 and the cill 6 each have lips 9 running along the longitudinal edges of a major surface 10 and a groove 12 runs longitudinally along the centre line of surface 10. The presence of the groove 12 in the cill 6 is an artefact of the cill's manufacture since it may advantageously be formed integrally with the uprights 2 and cut to required lengths subsequently.

A slotted clip 14 is then inserted into the groove 12 in each of the first and second uprights 2 at a height above the cill 6 corresponding to the height of the blocks 16 from which the wall is to be built. The slotted clips 14 are screwed into place.

The slotted clips 14, shown in detail in figure 6, are formed of steel and have first and second end portions 26, 28 having countersunk screw holes 30, 32 respectively formed

therethrough. A third portion 34, interposed between the end portions 26, 28, has a keyhole shaped aperture 36 formed therethrough. The aperture 36 has a first, substantially circular portion 36a and a second, elongate portion 36b.

The first block 16 is placed on the cill 6 where it meets the upright 2 with a side face adjacent upright 2 as shown in figure 2. An elongate mullion 18 having length substantially equal to the height of the blocks 16 is then placed with a major surface adjacent a side face 19 of the first block 16. As shown in figure 3, a second block 16 is then placed with a side face adjacent the other major surface of the mullion 18. More blocks and mullions 18 are fitted in the same manner until a block 16 is fitted which has one side face adjacent a mullion 18 and the opposite side face adjacent the second upright 2.

An elongate rail 20 having length substantially equal to the width of the wall to be built and also having lips running along the edge of its major surface is then fitted on top of the blocks and mullions 18 with a major surface of the rail 20 in contact with top faces of the blocks 16 and ends of the mullions 18 (as shown in figure 4). The heads of the pins 24 in the ends of rails 20 are inserted into the first portions 36a of the apertures 36 in the slotted clips 14 mounted in grooves 12 of the uprights 2 as shown in figure 5. The rail is then moved parallel to the upright 2 towards the second end portions 28 of the clips such that the shafts of the pins 24 move into the second portions 36b of the apertures 36. This second portion 36b of the aperture 36 is narrower than the diameter of the head of the pins 24 such that the pins 24 engage with slotted clips 14.

A second layer of blocks 16 and mullions 18 is built in a similar manner on the rail 20. Lips 8 running longitudinally along the edges of the major surfaces of the rail 20 engage with shoulders 22 on the blocks 16 above and below the rail 20.

Further layers of blocks 16 and mullions 18 are built until the required height of wall is achieved and a top piece (not shown) which is substantially similar to the cill 6 is placed on top of the topmost layer of blocks 16 and mullions 18 with lips 8 on its undersurface engaging with shoulders 22 on the top layer of blocks 16.

CLAIMS

1. A walling apparatus comprising a plurality of elongate members adapted to be fixed to one another in a framework and adapted to retain glass blocks in a wall.

2. A walling apparatus as claimed in claim 1, wherein at least one of the elongate members has a major face with a groove formed therein for receiving a clip.

3. A walling apparatus as claimed in claim 1 or claim 2, wherein at least one of the elongate members has a major surface along whose edges run lips for engaging the glass blocks.

4. A walling apparatus as claimed in any preceding claim, further comprising at least one pin and at least one slotted clip, the pin being mounted or mountable in an end of one of the elongate members serving as a rail and the clip being mounted or mountable in a slot in another of the elongate members serving as an upright such that the rail can be fixed substantially perpendicularly to the upright.

5. A walling apparatus as claimed in claim 4, wherein the clip has a keyhole shaped slot for receipt of a head of the pin.

6. A walling apparatus as claimed in any preceding claim, further comprising a plurality of mullions for placement vertically between adjacent glass blocks.

7. A walling apparatus as claimed in any preceding claim comprising at least one elongate member for use as an upright, having a longitudinally extending groove in a major face and a pair of lips extending along edges of the said major face for engaging with glass blocks, at least one elongate member for use as a rail, having opposed major faces along both of which extend lips for engaging with glass blocks,

and at least one mullion for placement vertically between glass blocks.

8. A walling apparatus as claimed in any preceding claim, wherein the elongate members are formed of timber.

9. A wall comprising glass blocks retained in a framework constructed from apparatus as claimed in any preceding claim.

10. A wall comprising a plurality of glass blocks retained by a framework which comprises at least one upright coupled to at least one rail by means of a slotted clip mounted in a groove in the upright and engaged with a pin mounted in an end of the rail.

11. A method of building a glass block wall comprising the steps of:

fixing an upright in a generally vertical position to form an end of the wall;

fixing a cill in a generally horizontal position such that an end of the cill is adjacent an end of the upright;

placing a glass block, having a front face, a rear face, a top face, a bottom face and two side faces, on the cill such that a side face of the block contacts the upright and a bottom face of the glass block contacts the cill;

placing a mullion, having end faces, edges and two faces, substantially vertically on the cill with a face of the mullion in contact with a side face of the glass block;

placing further glass blocks and mullions on the cill until a required width of wall is achieved;

placing a rail, having ends, edges and two faces, on top of the glass blocks

and mullions with an end of the rail in contact with the upright, a face of the rail being in contact with the glass blocks and the mullions; and

building one or more further layers of blocks and mullions in like manner.

12. A method as claimed in claim 11, comprising the further step of fixing a second upright in a substantially vertical position to form a second end of the wall.

13. A method as claimed in claim 11 or claim 12, comprising the further steps of:

inserting at least one pin into an end of at least one rail;

fixing at least one slotted clip to at least one upright; and

slotting a head of the at least one pin into the slot in the at least one clip.

14. A walling apparatus substantially as herein described with reference to, and as illustrated in, the accompanying drawings.

15. A glass block wall substantially as herein described with reference to, and as illustrated in, the accompanying drawings



INVESTOR IN PEOPLE

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Claims searched: 1-10

Examiner: Eleanor Wade
Date of search: 17 December 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): E1B B1A3A, B1AZ; E1D DLEKM- NT, NW, ST, SW

Int Cl (Ed.7): E04B

Other: Online: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 590921	Mendelssohn	1,3,6,9
X	EP 0101749	Westerwald Silik AG	1,3,9
X	US 5845443	Wirkus et al	1,2,6,8,9,11,12
X	US 5218806	Taylor	1,3,6,9
X	US 4458464	Borghetto	1,3,6,9,11,12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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